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UNITED STATES DEPARTMENT OF AGRICULTURE  
AGRICULTURAL RESEARCH ADMINISTRATION  
BUREAU OF ENTOMOLOGY AND PLANT QUARANTINE  
Division of Forest Insect Investigations

FOREST INSECT SURVEY  
LASSEN VOLCANIC NATIONAL PARK, CALIFORNIA  
FALL, 1953 RECONNAISSANCE SURVEY

A reconnaissance of current infestations of bark beetles in Lassen Volcanic National Park was made during September 23-25 by M. M. Furniss of the Berkeley Forest Insect Laboratory and Park Ranger Slim Maberry. The appended map shows the location of the area examined. The survey, conducted each fall, was made to appraise the effectiveness of maintenance control work which was done last winter and summer, and to estimate control needs for the coming winter.

A gratifying drop in the number of infested trees has occurred following control work in the Manzanita Lake and the Butte Lake units. This development is credited to an effective campaign against overwintering broods last fall and spring which was followed up by further reductions in beetle populations through summer maintenance control work. The application of summer control, fall surveys and thorough spotting of infested trees appears capable of maintaining losses at a very low level.

Manzanita Lake Unit

Last winter, approximately 90 Jeffrey pine trees infested with the Jeffrey pine beetle (Dendroctonus jeffreyi Hopk.) were treated either by the fell-peel-burn method or removed by light, mobile logging equipment. Only 20 infested trees were found during the recent survey. Experience indicates that an additional 10 trees may be expected to be killed before winter weather curtails beetle activity. On this basis, losses caused by the Jeffrey pine beetle in this unit have been reduced approximately 67 percent by control work. The full significance of this reduction is evident from the observations that Jeffrey pine beetle activity in uncontrolled areas elsewhere has increased during the past year.

An unusual complex of pine engraver beetles (Ips spp.), the California flatheaded borer (Melanophila californica Van Dyke) and the Jeffrey pine beetle killed 10 trees at Manzanita Lake on Sunset Point during the past year. The infested trees were treated, with outstanding success by application of a solution of ethylene dibromide in fuel oil, marking the first use of this chemical in the Park. Other trees on Sunset Point, which are of inestimable scenic value, have been damaged by pine engravers. It is hoped that the action taken to treat the infested dead trees will allow the remaining damaged ones to escape being destroyed by additional attacks.

### Butte Lake Unit

About 50 infested trees were treated in this unit since last fall. The recent survey resulted in locating 10 brood-containing trees. It is likely that 10 more trees will be found here this winter. The infested trees are about evenly divided between three bark beetles: the Jeffrey pine beetle in the Jeffrey pine, and the western pine beetle (Dendroctonus brevicomis Lec.) and the mountain pine beetle (Dendroctonus monticolae Hopk.) in ponderosa pine. In contrast to the Manzanita Lake and Lost Creek units, there is a high proportion of ponderosa pine in the Butte Lake unit. In the campground area around the northwest shore of Butte Lake the stand is practically pure ponderosa pine. Jeffrey pine becomes very abundant in this unit toward the north boundary of the Park.

The apparent 60 percent reduction in losses at Butte Lake is extremely encouraging, and an all-out project against the few overwintering-brood trees should reduce losses to the lowest level in many years. Some of the reduction in losses is due to a falling-off of activity by the western pine beetle, which occurred generally throughout northeastern California this year. However, diminished Jeffrey pine beetle damage is only attributable to recent control work, because a serious outbreak developed this year on adjacent untreated National Forest Land, and control work had to be initiated on an emergency basis.

### Lost Creek Unit

This unit is much less accessible than the others and presents a real problem to control forces. The readily accessible portion within the Park has received attention during past control work. However, a large outbreak of the Jeffrey pine beetle which extends onto adjacent National Forest land, has developed in the most inaccessible part of the unit this year. Evidence gained from observations and an appraisal survey indicates that the outbreak is very active and infested trees are numerous. A control program in which the merchantable trees will be removed by logging and/or by treatment with toxic oil sprays has been recommended. A report covering the appraisal survey of this area is in preparation, although all pertinent information already has been released to aid the agencies involved to undertake quick action this fall.

### Summary and Recommendations

Losses due primarily to the Jeffrey pine beetle in the Manzanita Lake and Butte Lake units are some 60 percent less than they were at this time last year. The reduction in loss has occurred in the face of generally rising levels of beetle activity elsewhere, and indicates

that recent control work was very effective. The inauguration of summer maintenance control destroyed trees which otherwise would have been a nucleus for re-infesting the control areas.

Continuance of the control program is recommended in order to maintain losses at the lowest possible level. The use of ethylene dibromide spray worked well during its first trial against the Jeffrey pine beetle this season, and should be employed in subsequent treatment of infested material not removed by logging, or material which is too expensive or hazardous to burn.

Park personnel involved in arresting bark beetle damage have done an excellent job. Their cooperation in assisting the survey work and acting upon recommendations has been excellent, and is deeply appreciated by the Berkeley survey staff.

Forest Insect Laboratory  
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INSECT CONTROL UNITS  
LASSEN VOLCANIC NATIONAL PARK  
CALIFORNIA

LEGEND

--- Boundary of Control Unit  
— National Park Boundary

SCALE

